

for patients with pT2 disease for cases with trainee involvement (11 vs. 19 %, $p = 0.02$), although overall margin rates and margin rates for patients with pT3 disease were similar between the groups ($p = 0.34$). Cases involving trainees were longer (241 vs. 200 min, $p.001$) and resulted in higher estimated blood loss (190 vs. 120 mL, $p.001$) than the two staff surgeon cases. However, transfusion rates, intraoperative and post-operative complication rates didn't differ significantly between groups. In conclusion, surgical margin rates were lower in teaching cases for patients with pT2 disease. Importantly, trainee involvement in RARP is safe, with similar perioperative outcomes to staff-only surgical cases. This information may be useful for training and surgical planning.

CHARACTERISATION OF ANTIBODY RESPONSES TO GAL-POSITIVE AND GAL-FREE BIOLOGICAL HEART VALVES

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Background: Currently used replacement biological heart valves (BHV) contain the major xenoreactive antigen α Gal. A clinically relevant, non-human primate model has demonstrated a chronic BHV dependent stimulation of anti-Gal antibody in Gal-positive (WT) but not Gal-free (GTKO) BHV recipients. Preliminary flow cytometric analysis has suggested that a non-Gal antibody response to BHVs also exists. This study aimed to confirm these findings by comparing non-Gal antibody responses following implantation of either WT, or GTKO BHVs, in non-human primates.

Methods: Immunofluorescence microscopy was used to measure the level of non-Gal IgG antibody binding to GTKO porcine aortic endothelial cells (GTKO-PAECs) and fresh frozen sections of GTKO valves, stained with sera from WT and GTKO BHV recipients, obtained pre- and post-implantation.

Results: An increased level of IgG binding to GTKO-PAECs and GTKO valve sections, following BHV implantation, was present in WT but not in GTKO BHV recipients. Dual staining with CD31 showed non-Gal IgG binding to valve sections was present on endothelial cells on the leaflet surface and non-endothelial cells within the leaflet intima.

Conclusions: Gal-positive WT BHVs show increased antigenicity compared to GTKO BHVs, both for antibody reactive to Gal and non-Gal antigens. The increased non-Gal antigenicity of WT BHVs may be due to an α Gal dependent adjuvant effect which improves antigenic presentation of Gal associated polypeptides. Preformed and induced antibody mediated responses to BHVs contribute to immune injury, which likely contributes to eventual valve degeneration and calcification. This study provides evidence in support of producing new BHVs using GTKO pig tissue.

COMPARISON OF ROBOT-ASSISTED AND LAPAROSCOPIC PELVIC LYMPHADENECTOMY IN PENILE CANCER PATIENTS WITH STAGE N2/ N3 INGUINAL DISEASE

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Introduction: Favourable outcomes using robot assisted pelvic lymphadenectomy (RAPL) have been demonstrated in patients with bladder and prostate cancer. Current EAU guidelines recommend ipsilateral pelvic lymphadenectomy for penile cancer patients with metastatic inguinal lymph nodes found at radical inguinal lymphadenectomy. We have compared experience of RAPL and laparoscopic pelvic lymphadenectomy (LPL) for penile cancer patients with N2/N3 disease in a single centre.

Methods: Six patients (mean age 61) underwent RAPL and six (mean age 61) underwent LPL. All were penile cancer patients with N2/N3 disease diagnosed at radical inguinal lymphadenectomy. Pelvic lymphadenectomy was performed to the common iliac bifurcation at a separate sitting. Nodal yield, operation time and hospital stay were compared.

Results: RAPL and LPL were each performed on 9 pelvic lymph node chains; mean nodal yields (range) were 4.6 (1-10) and 3.1 (0-9) nodes respectively ($p=0.33$). Mean operation time (range) was 180 (140-225) minutes for RAPL and 144 (55-235) minutes for LPL ($p=0.26$), mean length of hospital admission (range) was 1.5 (1-2) days and 5.7 (2-11) days respectively ($p=0.016$). Post-operative complications following RAPL were a port-site hernia ($n=1$) and wound infection ($n=1$); both resolved on follow-up. After LPL two patients developed groin lymphoceles.

Conclusions: In this series RAPL compared favourably with LPL. Benefits include shorter convalescence and superior nodal yields. RAPL is therefore a feasible option for penile cancer patients. The short recovery period for

this procedure means simultaneous inguinal lymphadenectomy and RAPL is an option in cases where on-table frozen section confirms $>N2$ disease.

A RETROSPECTIVE STUDY TO DETERMINE THE EFFECT OF NEO-ADJUVANT CHEMOTHERAPY ON NODE POSITIVE BREAST CANCER

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Introduction: Neo-adjuvant chemotherapy (NACT) is being used more often in breast cancer patients to downstage the disease to attempt breast-conserving surgery if there is clinical and radiological response. All patients have their lymph nodes assessed prior to starting their NACT and if there is evidence of nodal involvement on cytology and/or biopsy then axillary node clearance is planned after finishing NACT. We carried out a retrospective study looking at patients with proven nodal involvement prior to their NACT and reviewed their final axillary node clearance results to assess the nodal response rate to chemotherapy.

Method: A database was compiled of all patients from 2009-2011 newly diagnosed with breast cancer that had positive axillary nodes on sampling (cytology or biopsy) and received NACT prior to surgery. The final axillary clearance histology was reviewed.

Results: 29 patients were identified, all female, with a mean age of 57 (39-73). 14% showed complete pathological breast response, while 21% of the patients were found to be node negative following their NACT. Of the patients with complete pathological response in the breast 25% were found to be node negative.

Conclusion: The study showed that it was possible to achieve complete pathological response using chemotherapy in node positive breast cancer, but it is more common to achieve partial response of either the lymph nodes or the primary tumour independently. If the axillary nodes are involved prior to NACT then the only safe surgical option to the axilla is axillary node clearance.

THE ANATOMY OF THE SUBSCAPULAR NERVES – A NEW NOMENCLATURE

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Aim: Previous study has described variation in the posterior cord (PC) nerve branch anatomy. We sought to examine this variability and if possible provide a new nomenclature to aid the plexus surgeon.

Methods: Thirty-three preserved cadaveric upper limbs were dissected. The origin of all nerves arising from the PC and their target muscles were recorded.

Results: Additional nerves not classically described were commonly found on dissection. Additional nerves were seen in 76% of specimens. These were named upper and lower subscapular accessory nerves dependent on their topography (aUS, aLS). Accessory upper subscapular nerves were present in 55% ($n=18$) and 11% of these ($n=2$) had two aUS nerves. Contiguous accessory lower subscapular nerves (aLS) were present in 9% ($n=3$). All upper subscapular nerves (USN) took origin from the PC. ALS nerves were present in 30% ($n=10$) of specimens. Of this group 50% ($n=5$) took origin from the PC, 30% ($n=3$) from thoracodorsal nerve (TD) and 20% ($n=2$) from lower subscapular nerve (LSN). Two aLS nerves were present in 3% ($n=1$). The LSN took origin from the axillary nerve (AN) in 15% of specimens and the TD in 3%.

Conclusion: We propose a new nomenclature for these common variations. The accessory upper subscapular nerves solely innervate subscapularis and arise exclusively between the USN and TD. Similarly the accessory lower subscapular nerves arise distal to the TD and solely innervate the subscapularis muscle. These accessory nerves may provide donor nerves for neurotisation procedures or be selectively denervated in cases of internal rotation contracture.

NOISE CHARACTERISTICS IN TWO TYPES OF TOTAL HIP ARTHROPLASTIES: A COMPARATIVE COHORT STUDY

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The link between squeaking and ceramic on ceramic (CoC) bearings has been widely reported in orthopaedic literature. We aim to look at the incidence of noise in CoC bearings compared to Metal on Polyethylene (MoP) bearing, which has never been linked to squeaking.

We developed a noise characterizing hip questionnaire and sent that along with the Oxford Hip Score (OHS) to 1000 patients; 3:2 ratio of CoC to MoP.